University of California - UC
Agriculture and Natural Resources - ANR
Desert Research and Extension Center - DREC
2018-2019 Projects

Alfalfa and Other Agronomic Crops

Project/Goal	Researcher
Response of Phaseolus beans to combined high temperature and drought under field conditions. The main objective is to evaluate and compare the variation among and within elite lines of 3 species of Phaseolus beans under drought and high temperature conditions.	Jorge Carlos Berny Mier y Teran, UC Davis – Plant Sciences, 530-752-7743, jcberny@ucdavis.edu
Alfalfa breeding nursery. We will be evaluating individual plants from a number of experimental populations in order to select persistent, disease and insect resistant, and high yielding plants to develop populations that will be evaluated for potential cultivar release.	Charles Brummer, UC Davis – Plant Sciences, 530-574-6133, ecbrummer@ucdavis.edu
Alfalfa germplasm evaluation. To evaluate new sources of alfalfa germplasm for productivity and persistence under heat, limited water, and salinity using subsurface drip irrigation.	Charles Brummer, UC Davis – Plant Sciences, 530-574-6133, ecbrummer@ucdavis.edu
Heritage seed variety trial. This trial will compare several experimental varieties to CUF101 and other checks using standard alfalfa variety trial plots.	Charles Brummer, UC Davis – Plant Sciences, 530-574-6133, ecbrummer@ucdavis.edu
Summer dormant tall fescue. This experiment will test a range of germplasm in order to identify a series of "check" cultivars that can be used to assign dormancy to new breeding germplasm and help develop productive, summer dormant populations.	Charles Brummer, UC Davis – Plant Sciences, 530-574-6133, ecbrummer@ucdavis.edu
Alfalfa yield trials. To evaluate certified cultivar differences in alfalfa forage yield, quality, and persistence, and to communicate these results to clientele. To develop and provide forage yield and performance data on alfalfa experimental germplasm to public and private alfalfa scientists.	Daniel Putnam, UC ANR Specialist, 530-752-8982, dhputnam@ucdavis.edu
Various industry products for durum wheat growth. To investigate the response of durum wheat (grain yield and quality) to a new product said to enhance and retain wheat nutrient uptake and moisture around the crop's root system.	Oli Bachie, UCCE Imperial County, 442-265-7700, obachie@ucanr.edu
Winter nursery for new cereal varieties. To evaluate genetic lines of barley, wheat, and triticale that have potential for genetics and commercial applications.	Mike Oro, Field Crop Development Center, Alberta Agriculture and Forestry - Canada, 403-782-8039, michael.oro@gov.ab.ca
Wheat breeding for the Imperial Valley. The overall goal of this project will continue to be the production and evaluation of new durum varieties and improved germplasm to be distributed to growers, breeders, and other researchers.	Jorge Dubcovsky, UC Davis – Plant Sciences, 530-752-5159, jdubcovsky@ucdavis.edu

Evolutionary genomics of abiotic stress resistance in wild and cultivated sunflowers. This work will involve the field-based evaluation of drought resistance and related traits in a large number of sunflower lines, association mapping to identify genes/genomic regions conferring drought resistance, and detailed physiological analyses aimed at understanding the mechanistic basis of drought resistance.	Khaled Bali, UC ANR Specialist, 559-646-6541, kmbali@ucanr.edu
Sugarbeet Powdery Mildew Resistance Variety Trial (Imperial Valley). Evaluate onset, rate and degree of mildew occurrence on commercial and near commercial sugarbeet varieties proposed for sale in the Imperial Valley and elsewhere. Rank and compare tested varieties for resistance to sugarbeet powedery mildew.	Stephen Kaffka, UC ANR Specialist, 530-752-8108, srkaffka@ucdavis.edu
Sugar beet Alternative Insect Pest management Options for the Imperial Valley. This project will focus on managing major insect pests of sugar beet, such as flea beetle and armyworm during stand establishment, and leaf hoppers and armyworm in spring.	Oli Bachie, UCCE Imperial County, 442-265-7700, obachie@ucanr.edu
Quinoa variety trial under the low desert conditions. Twenty-one (21) replicated and 14 non-replicated varieties of Quinoa will be tested for adaptability and grain yield of various entries of quinoa under California's low desert ecosystem.	Oli Bachie, UCCE Imperial County, 442-265-7700, obachie@ucanr.edu
Biomass Productivity and forage quality comparison of new and existing forage crops for the low desert environment. The aim of this study is to quantify the yield of Moringa, Kleingrass, Bermuda grass, Teff, and Rhodes grass grown under the same agricultural practices.	Oli Bachie, UCCE Imperial County, 442-265-7700, obachie@ucanr.edu
Comparative Evaluation of Various Gibberellic Acid Inhibitors and Stress Reduction Products to Increase Alfalfa Bloom and Seed Set. This project examines anti-stress and anti-gibberellic acid (GA) products for their efficacy to increase alfalfa seed production.	Michael D. Rethwisch, UCCE Riverside - Palo Verde Valley Office, 760- 921-5064, mdrethwisch@ucanr.edu

Environmental

Project/Goal	Researcher
Biochar and bioengineered carbon for remediation of marginal land. Determine if this "bioengineered carbon" form of biochar really will make marginal land productive if incorporated prior to planting.	Milton McGiffen, UC Riverside – Botany and Plant Sciences, 951-827-5989, milt@ucr.edu
Reducing gaseous nitrogen losses from high temperature agricultural systems. Evaluate fertilization and irrigation practices that limit gaseous losses of reactive N from dominant crop types in the high temperature San Joaquin and Imperial Valleys of California. Acquire field data that can be used to improve regional scale models of N cycling and develop a GHG offset methodology.	Darrel Jenerette, UC Riverside – Botany and Plant Sciences, 951-827-7113, darrel.jenerette@ucr.edu

Fruit and Vegetable Crops

Project/Goal	Researcher
Evaluation of weather-based models for management of onion downy mildew. The objective of this project is to evaluate the utility of five epidemiological models of onion downy mildew as fungicide application advisory tools.	Alexander Putman, UC ANR Specialist, 951-827-4212, alexander.putman@ucr.edu
Organic carrot trials. This project evaluates experimental breeding stocks to address needs of the organic carrot crop production industry.	Joe Nunez, UCCE Kern County, 661-868-6222, jnunez@ucanr.edu
Carrot germplasm. The objectives of the project are to establish a winter carrot nursery and to have commercial carrot varieties from various seed companies planted in side by side comparisons for a carrot field day.	Joe Nunez, UCCE Kern County, 661-868-6222, jnunez@ucanr.edu
Melon host plant resistance to CYSDV and SPWF. Various types of melons and melon breeding lines will be planted at UC DREC and rated for resistance to CYSDV and resistance to sweetpotato whitefly.	Jim McCreight, USDA ARS – Salinas, 831-755-2864, jim.mccreight@ars.usda.gov

Irrigation and Fertilizer Management

Project/Goal	Researcher
Evaluation of drip irrigation in organic spinach production and downy mildew management. This project aims to evaluate the viability of adapting drip irrigation for organic spinach production compared with sprinkler irrigation, and to assess the impact of drip irrigation on the management of spinach downy mildew in the Imperial Valley.	Aliasghar Montazar, UCCE Imperial County, 442-265-7707, amontazar@ucanr.edu
Improving water use efficiency in alfalfa forage production through sub-surface drip irrigation and optimal irrigation water management practices. This study aims to initiate a field experiment at UC Desert Research and Extension Center to improve the efficiency of water-use in alfalfa systems via sub-surface drip irrigation (SDI), and to identify and evaluate the technical and economic viability of deficit irrigation management practices that can optimize alfalfa forage production while conserving water in the Imperial Valley.	Aliasghar Montazar, UCCE Imperial County, 442-265-7707, amontazar@ucanr.edu
Evaluation of water management techniques and fertilizer rates in onion production in California low desert areas. The main goal of this project is to evaluate different water management techniques and fertilizer rates in onion production in arid regions.	Jairo Diaz, UC ANR DREC, 760-791-0521, jdiazr@ucanr.edu
Automation of surface irrigation systems in the Imperial Valley. This project will demonstrate the potential use of innovative automation technology in water conservation to increase irrigation efficiency and demonstrate the use of this technology to growers in the Imperial Valley.	Khaled Bali, UC ANR Specialist, 559-646-6541, kmbali@ucanr.edu

Livestock

Project/Goal	Researcher
Cattle nutrition and management. The objective of the present study is to further evaluate the influence VM supplementation on overall performance of calf-fed Holstein steers, and its protein sparing effects in balancing diet formulations to meet amino acid requirements during the initial 112 d on growth performance, efficiency of energy utilization and characteristics of digestion.	Richard Zinn, UC Davis – Animal Sciences, 760-356-3068, razinn@ucdavis.edu

Olives

Project/Goal	Researcher
Olive production practices in the Imperial Valley. The objective of this research is to study the efficiency and the economic feasibility of various olive production practices in the Imperial Valley with emphases on water use efficiency and the possibility of the reuse of surface and subsurface drainage waters to supplement crop water needs.	Khaled Bali, UC ANR Specialist, 559-646-6541, kmbali@ucanr.edu

Weed Management

Project/Goal	Researcher
Evaluating preplant and post plant herbicide programs for weed management in transplanted LSL melons. The primary objective of this trial is to evaluate the use of several common pre and post-emergent herbicides on 1) weed control and 2) crop safety and yield in Harper-type LSL transplanted melons.	Travis Bean, UC ANR Specialist, 951-827-5130, travis.bean@ucr.edu
Comparison of sprinkler vs drip irrigation for enhancing control of hard to kill weeds by soil-solarization. The overall objective of this trial is to compare the current soil-solarization practice (sprinkler irrigation) adopted by growers to the new solarization technique (drip-irrigation) for improving control of hard to kill weed such as little mallow, purslane, and goosefoot.	Pratap Devkota, UCCE Imperial County, 442-265-7708, pdevkota@ucanr.edu
Evaluation of summer application of saflufenacil herbicide in low desert alfalfa. 1) To evaluate the alfalfa injury from sharpen herbicide application, 2) to evaluate the alfalfa yield after Sharpen herbicide application, and 3) to extend the information from this trial to the local clienteles.	Pratap Devkota, UCCE Imperial County, 442-265-7708, pdevkota@ucanr.edu
Determine Crop Safety to Broccoli and Celery. The overall objective of this trial is to evaluate the effect of Prefer herbicide on broccoli and celery production in low desert region.	Oli Bachie, UCCE Imperial County, 442-265-7700, obachie@ucanr.edu

Recently Completed Projects

Project/Goal	Researcher
California small grain variety selection trial. The overall objective of the research was to provide objective productivity information for new and existing small grain cultivars to growers in various regions of California as well as to public and private breeding programs.	Mark Lundy, UC ANR Specialist, 530-902-7295, melundy@ucdavis.edu
Evaluate grain sorghum hybrids for Californian feed. The objectives of this project are: Conduct multi-environment trials of grain sorghum varieties to obtain reliable estimates of genotypic performance of these varieties in California; use field trial data to conduct an analysis of genotype-by-environment interaction effects; and use field trial data to facilitate on-going crop simulation modeling efforts.	Jeffery Dahlberg, UC ANR KARE, 559-646-6060, jadahlberg@ucanr.edu
Comparison of furrow and drip irrigation methods for sugarbeets in Imperial Valley. Compare and quantify differences between drip irrigation and current surface irrigation techniques. Compare the effects of different irrigation systems on the occurrence of root rot pathogens at the end of the season.	Stephen Kaffka, UC ANR Specialist, 530-752-8108, srkaffka@ucdavis.edu
Evaluation of narrow row and traditional cotton planting practices for the low desert. To evaluate three different cotton varieties under narrow row (high density) and traditional wide row (low plant density).	Oli Bachie, UCCE Imperial County, 442-265-7700, obachie@ucanr.edu
Rhodes grass variety trial. This project was designed to test forage yield and nutritive composition of two varieties of Rhodes grass grown as hay under the low desert irrigated system.	Oli Bachie, UCCE Imperial County, 442-265-7700, obachie@ucanr.edu
Simulated cotton limb removal, growth stage and damage intensity on cotton yield. Evaluate cotton yield loss based on simulated levels of cotton crop damage.	Oli Bachie, UCCE Imperial County, 442-265-7700, obachie@ucanr.edu
Introduction and evaluation of kura clover in various California environments for seed and forage. To determine preliminary seed and forage yield possibilities at 3 different locations in California.	Daniel Putnam, UC ANR Specialist, 530-752-8982, dhputnam@ucdavis.edu
Management of sugarbeet cyst nematode. Asses the susceptibility of several new nematode resistant varieties, and the activity of several chemical and "non-chemical" nematicides.	Becky Westerdahl, UC ANR Specialist, 530-320-7213, bbwesterdahl@ucdavis.edu